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## NEW MAPS.

### AMERICA.

UNITED STATES.—(a) Map showing the Distribution of the Principal Clay-Bearing Formations of New Jersey. Scale, 1:316,800, or five statute miles to an inch.

(b) Map showing the Distribution of Clay Pits and Clay Manufactures in New Jersey in 1903. Scale, 1:316,800, or five statute miles to an inch.

(c) A Map of the Clay Formations in Northeastern Middlesex County, N. J. Scale, 2,000 feet to an inch.

(d) Map showing the Clay Formations near Keyport and Mattawan, N. J. Scale, 2,000 feet to an inch.

These four maps accompany Vol. VI of the *Final Report* of the State Geologist of New Jersey, published at Trenton in 1904. The volume, "Clay Industry," is devoted to the stratigraphy and economic geology of the New Jersey clays, the properties of clays, and their manufacture and economic applications.

MAGELLAN STRAIT.—Estrecho de Magallanes (Sheets, Canal i Puerto Condor i Lago de la Botella and Puerto Zenteno, Canal Tortuoso i Laguna Baja). Scale, 1:20,000, or 0.3 statute mile to an inch. Hydrographic Office, Valparaiso, Chile, 1903.

Two sheets of the chart of Magellan Strait, with numerous soundings taken from the British charts, soundings and altitudes in metres, and land-forms shown with the effect of relief. No lines of latitude or longitude, but the position of one point on each chart approximately indicated.

### EUROPE.

GERMANY.—Die Schiffsunfälle an der Deutschen Küste. Scale, 1:250,000, or 19.7 statute miles to an inch. Vierteljahrshäfte zur Statistik des Deutschen Reichs, Vol. 13, No. 3. Imperial Statistical Office, Berlin, 1904.

This is a model for maps of the kind. The disasters to shipping on the navigable inland waters and on the sea within 20 nautical miles of the coasts are shown for the five years 1898–1902. Forty-four different symbols are used to show different kinds of accidents and their results. One symbol, for example, shows that a sailing vessel was stranded and lost; another that it was stranded and got off again. Two other symbols give the same information concerning a steamship. Thus a condensed history of five years of marine accidents is given. An inset on the larger scale of 1:600,000, or 9.4 statute miles to an inch, gives this information in greater detail for the North Sea Coast.

### ASIA.

JAPAN.—Geological Map of the Japanese Empire. Scale, 1:1,000,000, or 15.7 statute miles to an inch. Compiled by the Imperial Geological Survey of Japan. Tokio, 1904.

This fifteen-sheet map shows that the Japanese are not behind other nations in the fine art of map-making. Their cartographers studied the art in its modern development in Europe, and they are excelling in their application of what they have learned. Fourteen tints are used to show geological formations, and ten shades of blue denote the contours of the neighbouring sea-floor as far as it has been surveyed.

With all this great variety of tints on a small-scale map the colours are as sharply registered as on any map. The Japanese have evidently mastered the art of colour-printing. The work can, however, be regarded only as preliminary to a complete map, inasmuch as the detailed topographical survey has not yet been finished, and it is, therefore, impossible to assign exactly correct positions to all the formations outlined; but the map is noteworthy as the first fairly exact geological map of Japan. No contours are shown for the land surface, but there is a table of the names and elevations of 165 volcanoes, of which 59 are marked as active. An inset shows the distribution of the volcanoes and the extent and position of the volcanic zones both on land and sea.

The authors of the descriptive text *Outlines of the Geology of Japan*, prepared to accompany this map, have interpreted their duty so literally that the first half of the book (about 100 pages) is little more than a catalogue of the rock exposures throughout the empire. A connected and interesting history of the geology of Japan, in the light of the present knowledge of it, is yet to be written. One fact adduced is that, although the empire has 165 volcanoes, only 19.16 per cent. of the total area of Japan is occupied by volcanic rocks.

#### AFRICA.

TOGO.—Karte der deutsch-englischen Grenze in Tschokossi-Mamprussi-Gebiet. After the surveys of Graf Zech and Frhr. v. Seefried, of the German Boundary Commission, 1902. Prepared by P. Sprigade: 1:100,000. *Mitt. aus den deutsch. Schutzgeb.*, Vol. XVII, No. 3, Berlin, 1904.

Shows boundary posts, triangulation points, chief towns, and roads.

TOGO.—Die neue Westgrenze von Togo. Scale, 1:2,000,000, or 31.3 statute miles to an inch. *Deutsche Kolonialzeitung*, No. 41, 1904, Berlin.

The treaty between Germany and Great Britain, signed June 25, defines the boundary from 9° N. Lat. northward to the French Sudan between the northwestern part of Togo and the northern Territory of the British Gold Coast Colony. The entire boundary of Togo is now established, which cannot be said of any other of the German protectorates in Africa.

RHODESIA.—Railroad Distances in Rhodesia. Scale, 110 statute miles to an inch. *Report of the British South Africa Company for the Year ending March 30, 1903*. London, 1904.

The latest map of railroad progress and projects in this part of Africa from the Orange River and Kimberley in the south to Lake Tanganyika in the north. All the railroads in operation, building, or projected, with all the stations, coal and other mining fields, are shown. The Rhodesian system of railroads begins at Vryburg in the south, and the rails now extend to Victoria Falls on the Zambezi in the north. The gauge is 3 feet 6 inches, which is standard in South Africa. The road from Salisbury to Ayrshire, 83 miles, however, is only of two-feet gauge.

#### THE WORLD.

WORLD.—Coaling Stations of Great Britain and the United States. Mercator Projection. *Proceedings of the United States Naval Institute*, Sept., 1904. Annapolis, Md.

A black-and-white map showing the distribution of the coaling stations of these nations (away from home). Ships may take coal at 98 places in the United States and at 88 places in the United Kingdom.

WORLD.—Übersichts-Karte der seebebenartigen Erscheinungen. Scale at the

Equator, 1:80,000,000, or 1,262 statute miles to an inch. By Wilhelm Krebs. *Globus*, No. 11, Braunschweig, September, 1904.

The map indicates the position at sea from which seaquakes have been reported, the locations of submarine eruptions, and the places along coasts where earthquake and eruption waves have made themselves felt.

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## BOOK NOTICES.

*Earthquakes in the Light of the New Seismology.* By Clarence Edward Dutton, Major U.S.A. 314 pp. G. P. Putnam's Sons.

This volume is a reminder, hardly needed by the geologist, that Major Dutton was for many years a member of the U. S. Geological Survey, and is the author of the *Tertiary History of the Grand Canyon District*, *The High Plateaus of Utah*, *Hawaiian Volcanoes*, and *The Charleston Earthquake*. The present theme is too technical to allow much liberty of style, but one who has read the author's reports is not surprised to find a dash of eloquence on an early page in the general description of an earthquake.

The new seismology requires us to think of the earthquake, not as a cause, but rather as an effect, or incident of geological changes. We must also discard the notion of "earthquake weather," or other trustworthy signs of the coming of such disturbances. The cause of earthquakes is taken up early, and this discussion is followed by chapters on quakes of volcanic origin, and dislocation, or tectonic, quakes. The term "quake" is used throughout for the longer and more familiar word. Earthquakes by downthrow of parts of the earth's crust seem well verified; but the theory must not be carried too far, and does not, in the light of modern knowledge, require the existence of great subterranean cavities.

The association of quakes with volcanoes, in a casual way, is said to be as old as Aristotle. This is a valid principle, first really developed by Von Buch and Humboldt. The careful study of large numbers of modern quakes, however, shows that volcanic connections are absent in the greater number of cases, though a recognized cause in some. Volcanic quakes are not often felt at long distances from their point of origin, although they may be extremely violent about their epicentres. Thus in the earthquake of Casamicciola, on the island of Ischia, in 1883, 1,900 people were killed; while only a faint tremour was felt at Naples, but twenty-two miles away. The destructive shock connected with an eruption of Mount Ararat, in